

KNN/Regularization (Q8L9)

19% (4/21)

✗ 1. The bias of an estimator (e.g. \hat{z}) equals...Hint: the OLS coefficients are unbiased :)

- ☐ A $E(\hat{z}) - z$
- ☒ B $E(\hat{z}^2) - [E(\hat{z})]^2$
- ☐ C $[E(\hat{z}^2) - E(\hat{z})]^2$
- ☐ D $E(\hat{z}^2)$
- ☐ E I do not know

✓ 2. The main idea of regularization is

- ☒ A To introduce a small amount of bias in order to have less variance.
- ☐ B To introduce a small amount of variance in order to have less bias.
- ☐ C To introduce a small amount of variance and bias in order to have less bias.
- ☐ D I do not know

✓ 3. How the tune of any parameter can be made

- ☒ A using Cross validation
- ☐ B It is impossible
- ☐ C I do not now
- ☐ D using larger sample
- ☐ E only having population

✗ 4. The ridge coefficient estimates shrink towards zero

- ☐ A when λ increases
- ☒ B when λ decreases
- ☐ C when $\lambda = 0$
- ☐ D I do not know

✗ 5. Which one can shrink the slope all the way to 0?

- ☐ A Lasso
- ☒ B Ridge
- ☐ C Regression
- ☐ D I do not know

✗ 6. When $\lambda = 0$, we have

- ☒ A Ridge
- ☐ B Lasso
- ☐ C EL
- ☐ D Regression
- ☐ E I do not know

✗ 7. When $\alpha = 0$, we have

- ☐ A Ridge
- ☒ B Lasso
- ☐ C EL
- ☐ D Regression
- ☐ E I do not know

✓ 8. Which function can help to perform cross-validation for regularization in R?

- ☒ A `cv.glmnet()`
- ☐ B `cros_val()`
- ☐ C `glmnet(method = "cv")`
- ☐ D I do not know

✗ 9. KNN is

- ☐ A Data-driven
- ☐ B Model-driven
- ☒ C I do not now

✗ 10. KNN is

- ☐ A parametric method
- ☐ B non-parametric method
- ☒ C I do not know

✗ 11. The dependent variable of the (OLS) regression is

- ☐ A categorical
- ☐ B ordinal
- ☐ C continuous
- ☐ D count
- ☒ E I do not know

✗ 12. The dependent variable of the classification is

- ☐ A categorical
- ☐ B numeric
- ☒ C I do not know

✓ 13. How to chose K?

- ☐ A pick own
- ☒ B using cross-validation
- ☐ C the largest one
- ☐ D the smallest one

✗ 14. KNN can be used for regression

- ☐ A Yes
- ☐ B No
- ☒ C I do not know

✗ 15. In the case of KNN classification we use

- ☐ A average of outcomes
- ☐ B majority voting scheme
- ☒ C I do not know

✗ 16. Which of these errors will increase constantly by increasing k?

- ☐ A train error
- ☐ B test error
- ☐ C both
- ☒ D I do not know

✗ 17. This function can be used to perform KNN in R

- ☐ A knn()
- ☐ B k_nn()
- ☐ C knnreg()
- ☐ D knearneib()
- ☒ E I do not know

✗ 18. With the increase of k , the decision boundary will be

- ☐ A simplified
- ☐ B more complex
- ☒ C I do not know
- ☐ D unchanged

✗ 19. The best k correspond to

- ☐ A the lowest point of test error
- ☐ B the lowest point of train error
- ☐ C the highest point of test error
- ☒ D I do not know

✗ 20. KNN algorithm is sensitive to outliers

- ☐ A True
- ☐ B False
- ☒ C I do not know

✗ 21. KNN

- ☐ A is a supervised learning algorithm.
- ☐ B is an unsupervised learning algorithm.
- ☒ C I do not know